

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 6107

Tariff filing of Green Mountain Power Corporation)
requesting a 12.9% rate increase, to take effect)
June 22, 1998)

PREFILED TESTIMONY OF
KATHRYN E. PARLIN
ON BEHALF OF THE
VERMONT DEPARTMENT OF PUBLIC SERVICE

September 18, 1998

Summary: Ms. Parlin reviewed GMP's DSM program performance in the residential sector. Her testimony describes specific instances in which GMP's DSM performance in the residential sector is inconsistent with the principles outlined in Docket 5270. She recommends a number of program cost and ACE disallowances.

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Prefiled Testimony
of
Kathryn E. Parlin

1 Q. Please state your name and business address.

2 A. My name is Kathryn E. Parlin, and I am a partner in West Hill Energy Consultants.
3 My business address is RR #1, Box 155, Chelsea, Vermont, 05038. I am testifying on
4 behalf of the Vermont Department of Public Service (the "Department" or "DPS") in this
5 docket.

6 Q. Please summarize your professional background and experience.

7 A. I have eleven years of experience in the field of energy conservation and database
8 development. From 1987 to 1990, I worked for the Conservation Services Group
9 (formerly Community Energy Partnership) in Massachusetts. My job entailed managing a
10 contractor arranging service, developing and maintaining audit-related databases, assisting
11 with the implementation of a financing program for energy conservation measures, and
12 designing and screening utility conservation programs. Since moving to Vermont and
13 establishing West Hill Energy Consultants with my partner in 1991, we have provided
14 services related to the review, design and implementation of utility demand side
15 management ("DSM") programs and have also designed and developed a number of
16 database tracking systems. Previous clients include the Vermont Department of Public
17 Service, the Washington Electric Cooperative, Vermont Energy Investment Corporation,
18 Energy Rated Homes of Vermont, Conservation Services Group and others. My resume
19 and a list of completed projects of West Hill Energy Consultants are attached as Exhibits
20 DPS-___KEP-1 and DPS-___KEP-2.

1 Q. What is your educational background?

2 A. I graduated with a B.S. degree in Mechanical Engineering from the University of
3 Vermont in 1986.

4 Q. Have you previously testified before the Public Service Board?

5 A. Yes, I have, in Dockets 6018, 5983, 5841/5859, 5724/5701, 5270-GMP-4, 5270-
6 CUC-2 and CUC-3, 5270-NED-1, 5270-WEC-1, 5270-CV1&3, and 5632.

7 **I. Summary and Recommendations**

8 Q. Please summarize your testimony.

9 A. My testimony covers Green Mountain Power Corporation's ("GMP's") DSM
10 performance in the residential sector. GMP's implementation of its residential DSM
11 programs shows a substantial retreat from DSM implementation and least cost planning
12 over the past four years. GMP has been providing fewer and fewer services to residential
13 customers, has radically reduced its monitoring and evaluation efforts, and has failed to
14 provide adequate oversight of its programs. DSM planning has become a rote exercise
15 done with little consideration of actual DSM potential or the principles of societal cost-
16 effectiveness screening laid out in Docket 5270.

17 At the same time, GMP claims success in effectively implementing its DSM
18 portfolio, which it defines in terms of meeting its self-set goals. These goals, however, are
19 simply a reflection of GMP's lowered expectations and have no relation to past
20 performance or to the DSM potential which could be acquired.

21 The Vermont Public Service Board ("the Board") has given GMP clear direction
22 to acquire all cost-effective DSM resources in Dockets 5270, 5428, 5330 (Condition 8)
23 and, most recently, in Docket 5983. GMP's DSM performance in the residential sector
24 does not meet these standards either during the cost recovery period in this docket or

subsequent to the Board order in 5983.

Q. Please summarize your adjustments to GMP's DSM cost recovery in this docket.

A. I recommend that the Board reduce GMP's DSM deferral account by \$94,770 due to specific program costs disallowances, and GMP's ACE by 157 annualized Mwh, or approximately \$7,623. While the amount of these disallowances is small in comparison to GMP's rate base, they reflect serious and ongoing problems with GMP's DSM program performance in the residential sector. These disallowances are summarized in Exhibit DPS-___KEP-5.

Q. Please explain how your testimony is organized.

A. The remainder of this testimony is divided into four sections. I have listed the sections below with a brief summary.

1) *GMP's program implementation in the residential sector*

While there appears to be significant remaining potential to achieve residential DSM resources in GMP's territory, GMP provided few DSM services to its residential customers during this period. This section covers GMP's DSM implementation during the cost recovery period, including a description of GMP's residential DSM activities, the net reduction in services offered to the residential market, sharp cutbacks in monitoring and evaluation activity, failure to provide proper oversight of program implementation, and inadequate tracking of DSM activity. I have also included a discussion of the remaining DSM potential in the residential market.

2) *Recommendations for Program and ACE Disallowances*

This section covers the basis for specific program cost and ace disallowances, including poor implementation of the Residential Retrofit Program, incorrect accounting of the costs of ripple controls, inappropriate installations of occupancy thermostats in the Mad River Valley ("MRV") Residential Retrofit Program, and ACE adjustment due to the

1 overstatement of savings in the MRV and the general territory residential retrofit
2 programs. Although I do not recommend direct program cost disallowances for GMP's
3 substandard performance in the low income and the new construction markets, these
4 issues are discussed in this section and are referenced by Department Witness Parker to
5 support his recommended ROE penalty.

6 3) *Response to GMP's Claims Regarding DSM Performance*

7 I have responded to some of the statements made by Mr. Grimason in his
8 testimony of June 18, 1998. My testimony shows that GMP's projections are not based
9 on a meaningful assessment of the DSM potential, and, thus, comparison to the
10 projections is not a useful tool to assess actual program performance. I have also shown
11 that the claimed "productivity gain" is illusory and that more appropriate indicators of
12 DSM program performance do not substantiate GMP's claims of successful program
13 implementation.

14 4) *GMP's Actions Subsequent to the Order in Docket 5983*

15 The final section includes a brief discussion of GMP's response to the Board's
16 order in Docket 5983. My testimony shows that GMP's actions subsequent to the order
17 in Docket 5983 further demonstrate its failure to use DSM as an effective tool for least
18 cost planning. I also discuss some specific instances in which GMP has not followed the
19 Board's directives.

20 **II. GMP's Program Implementation in the Residential Sector**

21 Q. How would you characterize GMP's DSM performance during the cost recovery period?

22 A. GMP's DSM performance was inadequate to meet its regulatory obligations
23 during the cost recovery period. Over the past two years, GMP has continued the retreat
24 from DSM which began in 1994. Some indicators of its inadequate DSM performance
25 are listed below and discussed in greater detail in the remainder of this section.

26 1) GMP's changes to its residential DSM portfolio have resulted in *a net reduction of*

1 *DSM services* available to its customers.

2 2) GMP has *substantially decreased* its monitoring and evaluation activities.

3 3) GMP tracks less and less information about its DSM activities in both the residential
4 and C&I sectors, and has now come to a point where *critical program data is no longer*
5 *available* in its computerized tracking system.

6 4) There still remains *substantial DSM resources to be achieved* in GMP's residential
7 market.

8 The failure to perform basic M&E functions and to track the key program data
9 needed for such activities seems to point to DSM being used as a tool for customer
10 service rather than as a component of a least-cost strategy for resource management.

11 **A. Summary of Residential DSM Activity**

12 Q. Please describe GMP's residential DSM activities during the cost recovery period.

13 A. GMP was actively implementing three ongoing DSM programs, two new
14 programs and providing follow up services for four programs which had been terminated.
15 I have listed the programs with savings and costs in Exhibit DPS-___KEP-3.¹

16 The four terminated programs were those stemming from the stipulation in Docket
17 5780. The two new programs are both statewide efforts implemented by subcontractors:
18 the Vermont Star Homes new construction program and the Residential Energy Efficiency
19 Partnership ("REEP"). REEP provides retrofit services to the low-income multi-family
20 market.

21 The Trade Ally Lighting program continued to promote the installation of efficient

¹ The Low-Income Multi-family Program had two separate components: the program implemented in-house by GMP during 1996 and early 1997, and the Residential Energy Efficiency Partnership (REEP), a statewide program implemented by a subcontractor starting in April of 1997. For the purposes of this testimony, I have counted these two program components as separate programs.

1 lighting products through coupons, rebates and other marketing efforts. As a component
2 of this program, GMP also participated in the statewide utility group promoting point of
3 sale lighting strategies.

4 The Residential Retrofit Program offered direct install lighting and DHW
5 conservation devices, but only to customers who were in the process of receiving, or
6 having repairs done on, a rental DHW tank or ripple controls from GMP.

7 For all of these programs during 1997, GMP reported total program costs of
8 \$557,000 and 1,351 annualized Mwh on these programs. In comparison, GMP spent \$1.8
9 million and claimed 3,420 annualized Mwh in the residential sector at the peak of its DSM
10 implementation in 1993.

11 **B. Net Reduction in DSM Services**

12 Q Why do you state that GMP's changes to its DSM portfolio resulted in a net reduction in
13 DSM services offered to customers?

14 A. GMP did not offer any services directly geared to its non-low-income, high use
15 market during the cost recovery period. From 1992 through 1994, GMP offered services
16 to its high use customers through its residential retrofit program. During 1995 and 1996,
17 GMP offered a targeted high use program in the Mad River Valley. Since this program
18 was terminated, no program active during the cost recovery period addressed DSM
19 measures relevant to these high use customers either in the MRV or elsewhere, even for
20 customers in the MRV who may have wished to act on recommendations made during the
21 implementation of the now defunct MRV residential retrofit program.

22 While I would not necessarily advocate for a massive, territory-wide program
23 geared toward the high use retrofit market, GMP clearly had the opportunity to offer
24 targeted, comprehensive DSM services in the Mount Snow area (which has a stressed
25 T&D system), as identified by its own study and determined to be cost-effective.
26 Alternatively, GMP never made a serious attempt to try to reach this market at the time of

1 sale, despite GMP's agreement to do so in the memorandum of understanding ("MOU")
2 in Docket 5780 and Central Vermont Public Service Corporation's actual program
3 experience in this area.

4 **C. Lack of Oversight of DSM Implementation**

5 Q. What are your conclusions regarding GMP's oversight of its programs?

6 A. GMP's oversight of program implementation was inadequate. A number of the
7 residential programs were implemented by subcontractors, but it appears that GMP did
8 not make any significant effort to monitor program activity. During the cost recovery
9 period, GMP did not have a regular process in place to check on the performance of its
10 subcontractors through follow up with customers.

11 In fact, the subcontractor's performance in the residential retrofit program has
12 been found by GMP to be substandard. Following the Department's testimony in Docket
13 5983 regarding excessive program costs, GMP investigated the delivery of this program
14 early in 1998. This investigation indicated that its main subcontractor may not have been
15 performing up to basic standards, e.g., it appeared that measures may have been claimed
16 even though they were not installed or even left with the customers and participants may
17 have been receiving multiple visits and multiple installations of the same devices.

18 **D. Inadequate Data Tracking**

19 Q. Please clarify your concerns about the tracking of DSM information.

20 A. GMP is tracking less and less information about DSM program performance.
21 This reduction in tracking activity is not confined to the residential sector, but has affected
22 GMP's DSM programs across the board.

23 In the past, GMP's tracking of its DSM programs was reasonably good. GMP's
24 tracking system is fairly well designed and capable of providing the data needed for good
25 program implementation. GMP regularly entered information about cost-effective

1 measures which were recommended but not installed. GMP tracked audits and audit-
2 related information, and also kept other relevant information such as the number of units
3 in master-metered multi-family buildings.

4 During the cost recovery period, GMP did not track in its database the specifics of
5 measures that were recommended but not installed. According to GMP, it is not tracking
6 audits in the database at all. In addition, the Department requested GMP to provide the
7 number of units in each building with installations, to be able to assess whether or not the
8 energy savings claimed for specific sites were reasonable.² GMP stated that this
9 information was not available from its database.

10 These pieces of information are apparently only available in the participant files,
11 which, for the residential sector, largely consist of invoices from GMP's subcontractors.
12 While the information may be available, this filing system can make it difficult to find and
13 retrieve, and also require additional time and effort for management and reporting tasks.

14 Q. Why do you find GMP's reduced tracking activity to be a matter of concern?

15 A. It points to GMP's lack of commitment to monitoring and evaluation ("M&E").
16 GMP is not tracking critical information which could be used for day to day program
17 management, to assess program performance and to identify possible program
18 modifications.

19 **E. Lack of Program Evaluation**

20 Q. Please comment on GMP's evaluation of its residential DSM programs.

21 A. It appears that GMP's evaluation of its residential programs during the cost
22 recovery period was seriously deficient. The only significant evaluation effort was a

² Excessively high savings could be an indication of a master-metered multi-family building or could simply be an error, as was uncovered in Docket 5983.

1 comparative study of utility residential lighting programs done by the statewide working
2 group in which GMP participated. Other in-house efforts, identified by Mr. Grimason as
3 evaluation activities, largely consisted of sending or handing out response cards to
4 program participants. Grimason, pf. 6/18/98, at 14 to 15.

5 A quick review of GMP's DSM annual reports reveals deep cuts in spending on
6 evaluation activities. In 1997, GMP spent 1% of the total utility costs for the residential
7 programs (\$8,000) on evaluation. In contrast, GMP spent about 8% (\$136,000) of the
8 total utility costs in 1993.

9 This severe reduction in program evaluation has implications for resource
10 characterization and planning as well as ongoing DSM program implementation. Failure
11 to evaluate programs in a timely and effective manner indicates that GMP is not pursuing
12 DSM as a resource to compete with other supply options. Without a reasonable attempt
13 to evaluate program process and impact, GMP has no basis to determine the actual impact
14 of its programs or to consider seriously how its DSM efforts could be redirected or
15 improved.

16 **F. Remaining DSM Resources**

17 Q. Are there still opportunities to achieve DSM resources in the residential existing home
18 market?

19 A. Yes. There are substantial DSM resources left to acquire. A large segment of the
20 residential market has not received any services to date, and many prior participants have
21 received non-comprehensive services.

22 Reviewing GMP's performance since the inception of its DSM programs in 1991
23 shows the following trends in the residential sector:

- 1 1) GMP has provided DSM services to approximately 20,400³ of its 70,000 residential
2 customers, or less than 30%.
- 3 2) On a per participant basis, the annual savings varied from a low of 220 kWh in 1995 to
4 a high of 410 in 1996. Lifetime energy savings ranged from 2,865 in 1995 to 6,020 in
5 1996.
- 6 3) Over two-thirds of these customers participated only in the efficient lighting programs,
7 i.e., they may be counted for having installed a single efficient light bulb.
- 8 4) GMP estimated in 1996 that approximately 5%, or 3,500 customers, still had primary
9 electric space heat.⁴

10 In contrast, Washington Electric Cooperative (“WEC”) has been implementing an
11 aggressive and comprehensive direct install/high use program since 1992. WEC has
12 reached in the range of 45% to 50% of its residential customers with this program, and per
13 participant savings have ranged from 590 annual, and 5,350 lifetime, kWh in 1992 to
14 1,080 annual, and 17,990 lifetime, kWh in 1997. In 1991, WEC estimated that 3% of its
15 customers, or 260, had primary electric space heat with significant usage, and 30%, or
16 2,400, used more than 7,000 kWh per year.

³ This number may overstate the number of homes actually served. GMP counted the total number of account numbers of customers who received DSM services in any program. Each account number was included only once, but account numbers change when a new customer moves in. Therefore, the residents of a particular home may have efficiency devices through GMP’s program. If the home was sold and new residents of the same home received additional DSM services, the home would have been counted twice.

⁴ In response to DPS IR 4-6, GMP provided an internal memo from 11/25/96 which indicated that GMP’s estimate of the penetration of primary electric space heat was 4.9% of its residential customers. This estimate was used to determine the waste heat reduction of 2.35% to be applied to all residential lighting savings, based on the assumption that 48% of the lighting savings are lost in homes with electric space heat ($48\% \times 4.9\% = 2.35\%$). In response to DPS IR 6-4, GMP claimed that 2.35% of its residential market used primary electric space heat in 1996, referring to its 1997 DSM Annual Report. I was not able to find the reference in the DSM annual report.

III. Recommendations for Program and ACE Disallowances

A. Residential Retrofit Program

Q. What do you recommend regarding the Residential Retrofit program?

A. I recommend that the Board disallow \$81,000 of the \$125,000 incurred for the program during the cost recovery period. Of that amount, \$77,000 relates to charges to the DSM deferral account and \$4,000 is a payroll equivalency adjustment.

The reasoning behind this disallowance is similar to that presented in my testimony in Docket 5983, in which the Board accepted my recommendation and disallowed a portion of the cost of this program. GMP's implementation of this program did not change from October 1997, when I submitted testimony in Docket 5983, through the end of the cost recovery period in the instant docket. GMP continued its policy of installing no more than two indoor and two outdoor compact fluorescent lamps ("CFL's") per home, and materials were left for the customer to install.

Just as in the previous docket, a portion of the program cost currently under review should be disallowed due to the lack of comprehensiveness, excessive costs, the policy of leaving materials for the customer to install, and the failure to screen the program for cost-effectiveness.

In addition to the issues raised in the previous docket, more recent events indicate that GMP's oversight of this program was seriously deficient. It appears that GMP did not have an adequate process in place for monitoring its subcontractor's performance.

Q. Why did you conclude that GMP's oversight of this program was deficient?

A. GMP discovered in early 1998 that its primary subcontractor was billing GMP multiple times for visits to the same home. Once GMP recognized that there could be a problem, it investigated further and found indications that materials were not installed as claimed and sometimes were not left with the customer as claimed. This investigation

1 resulted in the termination of GMP's contract with this subcontractor.

2 Q. Please clarify your concerns about GMP's lack of oversight.

3 A. Once GMP realized there was a problem, it took action to identify the problem and
4 resolve it. However, this subcontractor had been working for GMP for a number of years,
5 and this series of events brings into question the savings claimed for this program over at
6 least the last three years. In this type of program, it is a standard practice to perform
7 quality control checks, such as phone surveys or on-site inspections, on a regular basis.
8 Apparently, GMP did not take any such actions to oversee its subcontractors until early in
9 1998.

10 Q. The Board order in Docket 5983 disallowing costs associated with this program did not
11 come out until February of 1998, after the end of the cost recovery period in the instant
12 docket. Thus, GMP did not have an opportunity to modify the program for the cost
13 recovery period. Why do you recommend that the program costs be disallowed again?

14 A. In Docket 5428, GMP was penalized for operating a direct install program and
15 installing only one CFL per home. GMP is very well aware of the Board's position
16 requiring comprehensive treatment at each site. GMP could easily have modified this
17 program to be in compliance with the principles outlined in Docket 5270 at any time.

18 Q. Please explain how you arrived at the amount of the disallowance.

19 A. I obtained the deferred costs for this program from the reports provided by GMP
20 in discovery. From the total amount, I subtracted the ongoing payments for fuel switching
21 loans and 50% of the cost of the materials, resulting in a disallowance of \$77,000. I then
22 calculated the amount of payroll charged to this program, and increased this amount by
23 the 49% payroll adder, which came to \$4,000, for a total of \$81,000.

B. Ripple DHW Controls

Q. Did GMP book charges for installing and repairing ripple DHW controls to its DSM deferral account in the instant docket?

A. Yes, apparently GMP did. Despite Mr. Grimason's clear statement to the contrary in his testimony of June 18, 1998 (at 17), GMP's responses to DPS IR 1-11 and 4-9 indicate that GMP charged \$11,670 to the DSM deferral account for costs related to the ripple DHW controls in direct disregard of the Board Order of February 28, 1998 in Docket 5983 (at 139). I have included the response to DPS IR 4-9 as Exhibit DPS-____KEP-4.

I am distressed that, despite Mr. Grimason's clear and unconditional claim that GMP had complied with Board's directive on this matter, the Company's documents show that these costs were not removed from the DSM deferral account.

Q. What is your recommendation?

A. I recommend that the \$11,670 of ripple-related charges be removed from the DSM deferral account.

C. MRV Residential Retrofit Program

Q. What is your recommendation regarding the MRV Residential Retrofit Program?

A. The Board should disallow the \$2,100 which was paid in incentives for the installation of occupancy thermostats in this program.

Q. Please explain why you recommend that the incentives for occupancy thermostats should be removed.

A. Occupancy thermostats were not an appropriate DSM measure for this program. In fact, the installation of occupancy thermostats was contrary to the goals of the MRV Energy Project. As a distributed utility ("DU") effort, the MRV Energy Project was

1 supposed to be designed to reduce winter peak demand on the stressed transmission and
2 distribution system. Occupancy thermostats are certainly unlikely to decrease, and may
3 actually increase, the winter peak demand. In addition, GMP's screening for this measure
4 was flawed. If the screening were corrected, the measure may prove to be non-cost-
5 effective.

6 Q. Why were occupancy thermostats a poor choice of measures for the MRV RR program?

7 A. Occupancy thermostats have long been recognized as useful energy saving devices
8 which reduce heating energy usage by heating a space to a lesser extent, i.e., to a lower
9 temperature, during certain periods of the day. However, from the electric utility
10 perspective, a large number of occupancy thermostats can have very detrimental effects on
11 the load shape due to an increase in peak demand as a large number of residences return to
12 the upper set point temperature.

13 This effect has been well documented. In fact, GMP has a copy of a study done by
14 a major utility which concluded that widespread installations of occupancy thermostats are
15 not desirable from the utility's perspective due to the recovery effect.

16 **D. Residential Low Income**

17 Q. Did GMP operate any DSM programs specifically targeted to the residential low income
18 market during the cost recovery period?

19 A. Yes. GMP's services to low income customers were offered through two
20 programs during the cost recovery period: a piggyback program with the Weatherization
21 Assistance Program ("WAP") and the low income multi-family program.

22 Q. Do you any comments about the WAP piggyback program?

23 A. The WAP program is a statewide effort implemented by a subcontractor (the State
24 Office of Economic Opportunity or "OEO"). In Docket 5983, I expressed concerns that

1 the program was not providing comprehensive services to low income customers. I
2 testified in that docket that GMP was generally providing basic direct install measures to
3 low income customers. A few customers were identified as having fuel switching
4 potential, but the vast majority received only direct install efficient lighting and DHW
5 conservation devices, although many participants had DHW and substantial usage levels. I
6 also commented that GMP failed to recommend and install nonstandard measures through
7 this program, i.e., custom measures designed to address specific issues found on site.

8 During the cost recovery period, GMP did not make any changes to its
9 implementation of this program. Comparing 1996 and 1997 reports, fewer participants
10 installed fuel switching measures in 1997, although more audits were performed.⁵

11 I continue to be concerned that participants with fuel switching potential may not
12 have been identified and pursued.⁶ Participant files do not show a clear and consistent
13 pattern of reviewing fuel switching potential at each site, and it appears that GMP did not
14 screen fuel switching for any participants beyond the six actual installations in 1997.

15
16 Q. Was GMP aware of any alternative approaches to working with OEO to provide services
17 to low income customers?

18 A. Yes. In May of 1997, the Department filed its Statewide Energy Efficiency Plan in
19 Docket 5854/5980. In this plan, the Department described an aggressive, comprehensive
20 approach to the single family, low income market based on a partnership with OEO to

⁵ One participant installed an efficient refrigerator in 1997, but from my review of participant files, I saw no indication that this measure was considered or offered outside of this one case.

⁶ Once a participant was identified as have fuel switching potential, GMP appears to have offered reasonably good services. From my review of the participant files, it appears that GMP paid more than its standard incentive offer for fuel switching in two cases where the participants were unlikely to re-pay the loans.

1 provide services.

2 Q. Do you have any comments about the low income multi-family program efforts?

3 A. During 1997, GMP provided follow up services related to its low income, multi-
4 family program started in 1996, and also participated in the Residential Energy Efficiency
5 Program (“REEP”), the statewide low income program. REEP is implemented by a
6 subcontractor, Vermont Energy Investment Corporation.

7 This program is in start-up phase. It appears to be having a promising beginning.
8 During 1997, lighting, refrigeration and fuel switching measures were installed.

9 **E. Residential New Construction**

10 Q. What did GMP offer in the way of DSM services to the residential new construction
11 market?

12 A. During the period under investigation in this rate case, GMP’s primary vehicle for
13 offering DSM services to its new construction customers was the statewide Vermont Star
14 Homes (“VSH”) program which started in May of 1997. In addition, a few savings
15 continued to come in from its previous new construction programs, including the joint
16 Vermont Gas System (“VGS”) program, the Trade Ally Lighting Program⁷ and the MRV
17 Residential New Construction Program.

18 Q. Do you have any comments about GMP’s performance in this market?

19 A. In 1997, GMP’s new construction programs in aggregate achieved a penetration of
20 approximately 7% of the new construction market. This penetration is extremely low,
21 particularly for a lost opportunities program in a market segment identified by the Board

⁷ In 1994, GMP terminated its original, collaborative residential new construction program and rolled new construction lighting measures into the Trade Ally Lighting Program.

1 in Docket 5270 as requiring special attention.

2 Q Do you attribute this poor penetration to the VSH program?

3 A No. The VSH program was in start-up phase during the cost recovery period in
4 this docket.

5 My point is that GMP has an ongoing obligation to provide DSM services to the
6 residential new construction market. GMP's program penetration was low in 1995 and
7 1996, in the range of 20% of the general new construction market. The 1997 aggregate
8 penetration is substantially worse at 7%. If GMP had been offering effective and
9 comprehensive DSM services to the new construction market prior to 1997 as directed by
10 the Board in Docket 5270, it seems that there would have been participants in the pipeline
11 which would have facilitated the start up of the new Vermont Star Homes program.

12 **F. ACE Adjustments**

13 Q. Do you recommend any adjustments to the energy savings used to calculate ACE?

14 A. Yes. I recommend that GMP adjust its ACE to correct the following errors:

15 1) the incorrect claim of savings from occupancy thermostats⁸ in the MRV residential
16 retrofit program, and

17 2) the overstatement of savings in the residential retrofit program as identified by GMP's
18 internal audit and noted by Mr. Grimason in his testimony of June 18, 1998.

19 These adjustments come to 11 annualized Mwh and \$396 for the occupancy thermostats,
20 and 146 annualized Mwh and \$7,227 for the overstatement of savings in the residential
21 retrofit program. These recommendations are summarized in Exhibit DPS-___KEP-5.

⁸ In this case, GMP promoted the installation of Lightstat thermostats. These thermostat reduce the temperature setting when the light level in the room goes below a certain level. Either artificial or natural light can trigger the return to the higher temperature setting.

1 Q. What are your concerns about GMP's savings claimed for the installation of occupancy
2 thermostats in the MRV Residential Retrofit Program?

3 A. As explained above under Section III.C., occupancy thermostats were not an
4 appropriate measure for the MRV program since these installations were not consistent
5 with the goals of the DU project.

6 In addition, GMP screened occupancy thermostats as a prescriptive measure, i.e.,
7 it was screened once with "average" savings. No screening was done for the specific
8 condominium units in which the thermostats were installed. To the best of my knowledge,
9 electric space heating measures are consistently screened as custom measures in the DSM
10 programs operated by Vermont utilities. Consumption levels vary too much from one
11 residence to another to base savings on an "average" dwelling.

12 I am also concerned that energy savings were overestimated in the "average"
13 screening done to support the installation of this measure. The percentage reduction in
14 space heating usage is higher than typically estimated for occupancy thermostats, and it is
15 only based on one Energy Services Company's ("ESCO's") estimate of savings for a
16 particular application, although other studies show lower savings from occupancy
17 thermostats.

18 In short, GMP has not demonstrated that the occupancy thermostats are cost-
19 effective in the specific installations, or that its savings estimates are reasonable for the
20 situation.

21 Q. Please explain the adjustment to the savings from the Residential Retrofit Program.

22 A. As discussed in its letter of June 2, 1998 to the Board, GMP reduced the 1997
23 savings from the residential retrofit program as a result of an internal audit conducted in
24 1998. However, the savings included in the ACE calculations in this docket were not
25 adjusted to reflect this reduction. Mr. Grimason stated in his testimony that GMP intends

1 to adjust the savings for this program when completing a compliance run incorporating all
2 the changes identified in this docket. Grimason, 6/18/98 pf. at 4, footnote 1. I have
3 included an estimate of the impact of this adjustment in Exhibit DPS-___KEP-5.

4 I recommend that the Board order GMP to make this adjustment in a compliance
5 run or reduce the ACE amount by the estimated impact as provided in Exhibit DPS-
6 ___KEP-5.

7 **IV. Response to GMP's Claims of DSM Program Performance**

8 Q. Your testimony about GMP's DSM performance appears substantially different from
9 GMP's witness Grimason. Please explain your perspective.

10 A. Mr. Grimason makes a number of claims about the success of GMP's DSM
11 programs:

- 12 1) GMP exceeded its goals and underspent its budget by a large margin.
- 13 2) GMP has improved the productivity of DSM program implementation, as
14 measured by cost per lifetime kWh saved, by 19% per year between 1992 and
15 1997.
- 16 3) The statewide efforts show that the utilities can deliver effective and
17 comprehensive programs in the core program areas, presumably as defined by the
18 Department in Docket 5980.

19 Mr. Grimason's analyses of GMP's program performance, however, are based on a
20 cursory overview of the aggregate numbers presented in the 1997 DSM Annual Report
21 and do not provide a complete picture of GMP's DSM program performance.

22 Q. Why do you assert that an overview of the aggregate numbers is not sufficient to assess
23 DSM program performance?

24 A. The Board set specific standards for DSM program implementation in Docket
25 5270. DSM programs should strive to maximize net benefits, to provide comprehensive

1 services at each site, and to minimize lost opportunities. The aggregate numbers used in
2 Mr. Grimason's analyses, i.e., the total savings, total costs and lifetime costs per kWh
3 saved, do not illuminate GMP's success at reaching these goals.

4 Better indicators of DSM program performance are penetration in the eligible
5 market and per participant savings. By these standards, GMP's residential programs are
6 performing poorly. As discussed above, GMP's penetration in the residential new
7 construction market was approximately 7% during 1997. For per participant savings in
8 the entire residential sector, GMP achieved 330 annualized kWh and 4,375 lifetime kWh.
9 In comparison, WEC achieved 1,080 annual kWh and 18,000 lifetime kWh per participant
10 in 1997.

11 **A. Comparison of Actual Performance to Goals**

12 Q. Are you aware of any issues with the actual activity presented in GMP's 1997 DSM
13 annual report?

14 A. Yes. GMP has substantially overstated its actual 1997 savings. Mr. Grimason
15 stated in his testimony that GMP achieved 8,328 annualized Mwh for all of its DSM
16 programs (residential and commercial/industrial) during 1997. Ibid., at 6 to 7. Mr.
17 Grimason did not reduce the savings by 182 Mwh to account for the correction to the
18 Residential Retrofit Program as identified by GMP in its June 2, 1998 letter to the Board.
19 In addition, Mr. Mosenthal identified approximately 1,432 Mwh which were incorrectly
20 claimed by GMP in the C&I sector and my testimony includes a further reduction of 11
21 Mwh. Accounting for all of these overstatements reduces GMP's actual savings for 1997
22 to about 6,900 annualized Mwh, or a 20% decrease from the savings as presented in Mr.
23 Grimason's testimony.

24 Q. Did GMP exceed its goals during 1997?

1 A. It appears so. Mr. Grimason stated in his testimony that GMP projected savings of
2 5,278 annualized Mwh, and actually achieved 8,328 annualized Mwh for all of its DSM
3 programs (residential and commercial/industrial). He further stated that the projected
4 budget was \$3,028,839, and GMP actually spent \$1,758,857. Ibid, at 6 to 7. Even
5 correcting for the substantial overstatement of savings, GMP still would have met the
6 projections for 1997 as originally presented in the 1996 DSM Annual Report. However, it
7 appears that GMP would have fallen short of its internal goal based on the 1996 integrated
8 resource plan as mentioned by Mr. Grimason in his testimony. Grimason, 6/18/98 pf., at
9 9.

10 Q. Is DSM actual performance in comparison to goals a useful indicator of success?

11 A. It can be. Goals established in a thoughtful and reasonable manner are based on a
12 number of factors:

13 1) past program performance

14 2) M&E results

15 3) estimated remaining DSM potential

16 4) the identification of target areas which could benefit from more intense DSM efforts

17 5) consideration of the needs of the residential market and the most effective approaches
18 to reach it

19 To the extent that goals incorporate these considerations, projections can be useful for
20 assessing program performance. However, if the goals are not based on a solid analysis
21 and fail to consider these factors, a comparison of goals to actual performance is
22 meaningless.

23
24 Q. Is GMP's DSM actual performance in comparison to its goals a useful indicator of

1 success?

2 A. No. GMP's 1997 projections are not based on the standard described above.
3 DSM goals do not seem to have any relationship to previous program performance.

4 For example, GMP consistently projects that its programs cost more and save less
5 than actual implementation indicates. The 1997 projections reflect substantially higher
6 costs in relation to savings than supported by actual performance for any other year since
7 1992. In terms of total utility costs per lifetime MWh, GMP projected the programs
8 would cost \$45 per Mwh in 1997, in comparison to actual 1996 costs of \$23 per MWh
9 and actual 1997 costs of \$17 per Mwh. Exhibit DPS-____KEP-6 is a graph of GMP's
10 actual and projected utility costs per lifetime kWh saved from 1992 to 1997.⁹ In fact, the
11 purported "productivity gains" touted by Mr. Grimason in his testimony are not reflected
12 in the Company's projections.

13 In addition, of the fifteen programs with projections during 1997, eight had utility
14 costs projected but no savings (more than 20% of the entire DSM budget).

15 **B. Claimed Productivity Gains**

16 Q. What is Mr. Grimason's testimony regarding GMP's "productivity gain" in DSM program
17 implementation?

18 A. Mr. Grimason stated ". . . GMP has reduced its cost-per-lifetime-kWh-saved from
19 4.6 cents to 1.7 cents, an average annual productivity gain of 19% per year . . ." between
20 1992 and 1997. Grimason, 6/18/98 pf., at 7.

21 Q. How would you define "productivity gain" in the context of a well-run DSM program?

⁹ This graph is based on the numbers reported in GMP's 1997 DSM Annual Report, i.e., the numbers have not been adjusted to account for the Department's reduced savings estimates.

1 A. A productivity gain occurs when a utility or DSM program implementor builds the
2 capability of achieving more comprehensive services and capturing more lost opportunities
3 while maintaining control over costs. During the start-up phase of a program, field staff
4 and managers are learning their jobs and building the infrastructure to be able to carry out
5 the tasks efficiently. This learning curve is usually the most expensive part of the process.
6 Once the staff and managers are up to speed and the infrastructure is in place, costs go
7 down and productivity is improved.

8 In a program which is up and running, productivity gains can be achieved by
9 increasing the measures available to customers, resulting in a corresponding increase in the
10 per participant savings. For a lost opportunities program, improving penetration in the
11 market would result in a productivity gain. Lowering incentives or other cost-reducing
12 measures, *if they can be done without sacrificing participation*, can also increase
13 productivity.

14 Q. How would you measure a productivity gain?

15 A. Perhaps the most thorough method is to analyze the net benefits. Increasing net
16 benefits would indicate increasing productivity. A less time-consuming approach may be
17 to review the cost per lifetime kWh saved in conjunction with the per participant savings
18 and penetration in the market over a period of time.¹⁰ Basing a conclusion about
19 productivity gains solely on the costs per lifetime kWh does not adequately address the
20 process for acquiring the savings. For example, a very low cost per lifetime kWh could be
21 a result of cream-skimming, noncomprehensive programs or overstatement of savings.
22 Analyzing only the per participant savings or penetration in the market, however, fails to

¹⁰ Analyzing whether or not a utility has maximized net benefits would require a societal screening. The DSM annual report does not provide enough information to perform such an analysis.

1 account for the costs required to achieve the savings.

2 Productivity gains could be demonstrated by the trends described below:

3 1) decreasing costs per lifetime kWh

4 2) increasing per participant savings

5 3) increasing penetration in the market

6 As the programs mature and program efficiencies have been achieved, the costs per kWh
7 saved are likely to level out. If the utility continues to implement aggressive programs
8 consistently over a period of time, eventually the cost per kWh saved will start to increase
9 and the per participant savings may decrease as the retrofit market is saturated and fewer
10 resources are available.

11 Q. Does GMP's DSM program performance show increasing productivity?

12 A. When the utility costs per lifetime kWh and the annualized per participant savings
13 are viewed together, there is no clear trend showing an ongoing and consistent gain in
14 productivity for the residential sector.¹¹ The costs per lifetime kWh saved are high in 1992
15 and 1993, and then vary between \$.02 and \$.04 per kWh from 1994 to 1997. The savings
16 per participant vary from year to year between 220 and 410 annual kWh. Apparent
17 productivity gains in 1996 seem to be largely lost in 1997.

18 In contrast, WEC's DSM performance shows a clear trend. The costs per lifetime
19 kWh saved were higher in the early years and then levelized at a lower rate. The per
20 participant savings continue to increase through 1997. Exhibits DPS-___KEP-7 and DPS-
21 ___KEP-8 show graphs of the utility costs per lifetime kWh and annualized kWh per

¹¹ Market penetration data is more difficult to obtain and assess, and is not readily available from the DSM annual report.

1 participant savings of the two utilities for the residential sector.¹²

2 Q. Do you have any other comments about GMP's claims regarding the cost per kWh saved?

3 A. Yes. GMP ran nine residential DSM programs during 1997, which cost in
4 aggregate about 3 cents per lifetime kWh saved. (Please refer to Exhibit DPS-___KEP-3
5 for a list of the programs, savings and costs.) However, there are specific circumstances
6 during GMP's implementation of its DSM portfolio during 1997 which indicate that the
7 low cost per lifetime kWh during 1997 is not entirely due to productivity gains and may
8 not be sustainable. A few of the program-specific circumstances are listed below.

9 1) Four of the programs were in ramp-down phase, i.e., the programs had been terminated
10 but a few customers were still completing installations. Just as start-up tends to be very
11 expensive with low savings, ramp-down usually results in additional savings at little to no
12 cost.

13 2) Three of the programs were statewide efforts, i.e., GMP was not the primary
14 implementor.

15 3) One of the statewide programs, REEP, was partially funded from a DOE grant.

16 4) The two programs which were actively implemented by GMP during the cost recovery
17 period cost more than 6 cents per lifetime kWh saved. When these two programs were
18 compared to similar ones run by other Vermont utilities, GMP costs are higher than most
19 of the other utilities. (See Exhibit DPS-___KEP-9.)

20 5) In 1992, GMP applied a 77% overhead adder to its DSM payroll costs. In 1993 and
21 subsequent years, the overhead adder was reduced to 49%.

22 6) GMP has radically reduced its M&E spending and corresponding activities. It
23 underspent its M&E budget by more than 90% in 1997.

¹² In this analysis, the annual and lifetime savings have been adjusted to reflect the reductions recommended in this testimony.

1 7) The low cost per lifetime kWh for the residential sector was largely due to the
2 performance of a single program, the Low Income Multi-Family Program, specifically
3 GMP's in-house component started in 1996 and completed in 1997. GMP had two major
4 fuel-switching projects in which the preliminary audits, analyses, and technical assistance
5 were provided in 1996, but the final installation occurred in 1997, i.e., the savings were
6 counted in 1997 but the vast majority of the costs were counted in 1996.

7 Q. What are your conclusions regarding GMP's program costs?

8 A. GMP's programs are not inexpensive in comparison with those run by other
9 utilities. In fact, the costs related to the two active programs directly implemented by
10 GMP were relatively high in comparison to similar programs run by other Vermont
11 utilities. (Please refer to Exhibit DPS-___KEP-9.)

12 **C. Statewide Programs**

13 Q. What is Mr. Grimason's testimony regarding the utility statewide programs and the
14 Department's core programs?

15 A. Mr. Grimason made the following statement:

16 "The coordinated utility initiatives in the core program areas demonstrate that Vermont
17 utilities can work together and deliver effective, comprehensive DSM programs on a
18 statewide basis."

19 Mr. Grimason appears to suggest that the utilities can operate the core programs as
20 effectively and efficiently as the Efficiency Utility proposed by the Department in Docket
21 5980.

22 Q. How do the current statewide efforts differ from the core programs proposed by the
23 Department?

24 A. The utility-run statewide programs to date have not accomplished the scope of

1 DSM program implementation envisioned in the Department's Statewide Energy
2 Efficiency Plan. The current statewide efforts seem to be operated in an inefficient
3 manner and generally offer fewer measures, lower incentives and fewer strategies for
4 reaching the market. In addition, it appears that GMP's approach to the statewide efforts
5 may be adding substantial costs to the delivery of the programs.

6 Q. Please clarify your concerns about the statewide, utility-run efforts.

7 A. The utilities oversee the current programs via committees consisting of one or
8 more representatives from each utility. These committees meet approximately once or
9 twice a month for each program. It has proven to be difficult to reach a consensus among
10 the utility parties on basic program implementation issues. For example, a large amount of
11 time seems to have been spent on discussing issues such as reporting formats, standardized
12 measure inputs, and other details of program implementation. The added layer of
13 oversight raises the administrative costs, which directly increases societal costs. Under the
14 Department's proposal, the core programs would be delivered through one entity, the
15 Efficiency Utility, each program would have a single administrator and the decision-
16 making process would be greatly simplified.

17 Another cumbersome aspect of the existing statewide efforts is that each utility has
18 different avoided costs, and GMP (among others) insists that custom measures be cost-
19 effective under its own avoided costs. Therefore, custom measures are currently screened
20 both with the utility's and the statewide avoided costs. In the REEP, GMP reviews all
21 screening and audit reports before they are submitted to the customers. In contrast, the
22 Efficiency Utility will screen projects with only one set of avoided costs and will eliminate
23 the additional level of review.

24 There are also some significant differences in the program designs. The
25 Department's residential efficient products core program covers more products and end
26 uses than the utility efforts to date. The program design also describes a wider strategy of

1 market transformation involving manufacturers, wholesalers, retailers and customers. The
2 core new construction program includes incentives for highly efficient (premium) homes.
3 These incentives are not currently offered in the Vermont Star Program, and there has
4 been very little activity in this program component to date.

5 Q. Do you have any other comments on GMP's involvement in the statewide programs?

6 A. Yes. It appears that GMP's involvement in the statewide DSM efforts is not
7 keeping GMP's costs down. For the Vermont Start Homes program, the utilities hired a
8 subcontractor to run the program and another subcontractor to develop marketing
9 materials. Thus, the utilities were not responsible for a substantial part of the operation of
10 the program. During 1997, however, GMP internal delivery costs *were greater than* the
11 total amount spent on the subcontractors.¹³

12 **V. GMP's Response to the Board Order in Docket 5983**

13 Q. Please summarize your comments on the actions taken by GMP since the Board order of
14 February 28, 1998 in Docket 5983.

15 A. GMP's response to the Board order in Docket 5983 is a further example of its
16 failure to consider DSM as a serious component of a least cost plan to meet the total
17 supply needs of its customers. Far from proposing innovative concepts or creative
18 approaches or even just showing a reasonable effort to identify all cost-effective DSM
19 potential, GMP seems to have abandoned the standards for resource planning as outlined
20 in Docket 5270. In addition, one specific directive in the order was simply ignored, and, in

¹³ Delivery costs are defined as costs identified in the administration and audit categories on the DSM annual report.

1 another case, the actions taken by GMP seem likely to have an impact which is contrary to
2 the Board's intention.

3
4 Q. On pages 17 to 18 of his testimony, Mr. Grimason discussed GMP's compliance with the
5 order of February 28, 1997 in Docket 5983. Do you have any comments?

6 A. Yes. Mr. Grimason appears to be providing a "laundry list" of all the specific
7 directives in the Board order. However, he fails to discuss the more general direction
8 provided by the Board. The order contains a clear warning to GMP to meet its regulatory
9 obligations to make a good faith effort to acquire all cost-effective DSM resources. It also
10 states that comprehensiveness at each site is a critical principle of DSM program
11 implementation and cannot be sacrificed.

12 Q. What steps did GMP take to respond to the Board's warning?

13 A. Other than its responses to the Board's specific directives as provided in Mr.
14 Grimason's list, GMP appears to have taken one other action: it performed a rough cost-
15 effectiveness screening of its current DSM programs and the Mad River Valley Energy
16 Project using both the stipulated avoided costs and the Hydro-Quebec contract costs.
17 There are two major problems with GMP's screening:
18 1) Apparently no attempt was made to screen any new programs, new concepts, or
19 existing programs with new measures added.
20 2) The screening deviated from the principles of the societal test to such a degree as to
21 invalidate the results.¹⁴

¹⁴ This screening was done by entering the aggregate savings and costs (including participant costs) from the 1997 DSM Annual Report for each program into the screening tool, using the load profile of a commonly-installed measure. This simplistic approach has two serious problems which are likely to have a major impact on results: it does not include any indirect costs or benefits (such as alternative fuel costs or avoided costs of incandescent bulbs), and the savings

1 In Docket 5270, the Board identified the societal test as the standard for cost-
2 effectiveness and outlined the guiding principles in applying the societal test to DSM
3 programs and measures. GMP submitted its collaborative program filing in 1991 based on
4 the societal test, and has been using this standard to perform screenings for custom
5 measures in the field on a regular basis. After more than five years of program
6 implementation, it appears that GMP has either forgotten or deliberately abandoned the
7 basic principles of the societal test for the purposes of program screening.

8 GMP apparently did not, and does not, intend to take any action on the basis of
9 these screenings, in spite of the fact that a number of the programs are shown to be non-
10 cost-effective (probably erroneously). While the screenings were ostensibly conducted to
11 determine the cost-effectiveness of the programs, GMP's failure to either correct them or
12 take action based on the results calls into question the actual purpose of the screenings.

13 Q. Do you have any other comments regarding Mr. Grimason's testimony on GMP's
14 response to the order in Docket 5983?

15 A. Yes. I have comments on two items on Mr. Grimason's "laundry list": the
16 removal of the ripple charges from the DSM deferral account and the redesign of the
17 residential retrofit program.

18 While Mr. Grimason states that GMP did not charge costs related to the
19 installation of ripple DHW controls to the DSM deferral account in the instant docket,
20 GMP's response to DPS IR 4-9 directly contradicts this statement. (See Exhibit DPS-
21 ___KEP-4.) I have discussed this issue in the section of my testimony titled "Ripple
22 Controls."

are reduced to account for the free riders, but costs are not. In one case an error in the range of
an order of magnitude was made in the participant costs as reported in the DSM Annual Report
and directly carried over to the screening.

1 Mr. Grimason claims in his testimony that GMP is redesigning the residential
2 retrofit program to “ensure delivery and installation of all cost-effective measures.”
3 However, even the most basic modification to program implementation (removing the
4 limit of the number of bulbs per residence) was made more than two and half months after
5 the order came out. Other modifications actually seem contrary to the goal of ensuring
6 “delivery and installation of all cost-effective measures.” For example, GMP no longer
7 leaves efficiency devices at the customers’ homes assuming that they will be installed.
8 Instead, if the customer is not home during the visit, the GMP representative installs only
9 one measure, pipe insulation, and leaves a receipt for additional conservation devices
10 (including tank wraps) which the customer may redeem at GMP’s district offices.

11 Q. Does this conclude your testimony?

12 A. Yes, it does.